PATENT ABSTRACTS OF JAPAN

(11)Publication number:

10-225083

(43) Date of publication of application: 21.08.1998

(51)Int.Cl.

H02K 33/18

G02B 7/04

G02B 7/08

G03B 3/00

H02K 11/00

(21)Application number: 09-026476

(71)Applicant: MATSUSHITA ELECTRIC IND CO

LTD

(22)Date of filing:

10.02.1997

(72)Inventor: NAKAO KATSU

TOKUNAGA TOMOKAZU

YAMANE YOSUKE

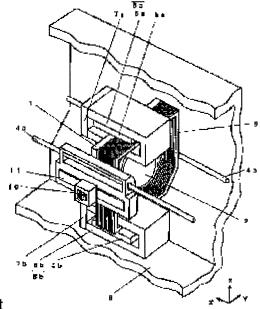
SAKA NORIHIKO

(54) LINEAR ACTUATOR AND OPTICAL INSTRUMENT USING THE LINEAR ACTUATOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a linear actuator at a low cost with a simple structure, which has a superior S/N ratio and whose magnetic sensor has difficulty in having influence of magnetic leakage from a drive magnetic circuit by using the magnetic sensor as a position detection means.

SOLUTION: This lens drive device is constituted by forming a coil at the lens holder 1 of movable part side, forming a pair of drive magnetic circuits which are formed at a lens-barrel 3 on the fixed side, roughly bilateral- symmetrically in a drive direction (X-direction), at a position roughly facing each other with a lens optical axis centered symmetrically. By forming a magnetic scale 11 on the lens holder 1 side as a position detection means, and a magnetic sensor 10 whose MR element is fitted at the lens lens-barrel 3, the magnetic sensor 10 is



formed at the almost central position of a pair of the magnetic circuits and in the almost symmetrical center in a driving direction. The direction of flowing current through the MR element is disposed almost in parallel with the magnetizing direction (Z-direction) of the magnet of a pair of drive magnetic circuits.